



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,439	08/15/2006	Ren-Hua Jin	060609	7239
23850 7590 09/30/2009 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
HARRIS, GARY D				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
09/30/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/589,439

**Applicant(s)**

JIN ET AL.

**Examiner**

GARY D. HARRIS

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 July 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-9 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 15 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 8/15/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 10-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 7/17/2009.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a length perspective as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1-9 are examined in the instant application as follows:

***Claim Rejections - 35 USC § 102 / 35 USC § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5, 8-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeyama US 20060050359 A1.

As to Claim 1, Takeyama US 20060050359 A1 discloses a polymer solid electrolyte (organic-inorganic that would include nanofibers) and silica covering said crystalline polymer filament (in the form of a colorant) (Paragraph 28 & 80). The colorant can be in the form of a polymer (organic pigment or a dye) which would include crystalline polymeric materials.

The polymer is selected from a group including polyethyleneimine (skeleton) (Paragraph 42) and a metal salt. Takeyama '359 additionally discloses straight chains based on the alkoxide (Paragraph 85) having a carbon number from 1-12. Since Takeyama '359 & applicant are utilizing a sol-gel process with an organic-inorganic crystalline polymer in the form of a polyethyleneimine and silica covering said polymer the Takeyama '359 invention would inherently have a straight-chain. The Examiner notes that given that the colorant is mixed with the polymeric material, it will necessarily "cover" the polymer filament.

In the event it is shown that Takeyama US 20060050359 A1 does not disclose the claimed invention with sufficient specificity, the invention is obvious because Takeyama US 20060050359 A1 discloses the claimed constituents including polyethyleneimine being the solid polymer is the structure based on a main chain (straight) or branched (comb or star) (Paragraph 88) and discloses that they may be used in combination.

As to Claim 2, Takeyama US 20060050359 A1 discloses the polymer is selected from a group including polyethyleneimine (skeleton) (Paragraph 42) and a metal salt. The polyethyleneimine being the solid polymer is the structure based on a main chain (straight) or branched (comb or star) (Paragraph 88).

As to Claim 4, Takeyama US 20060050359 A1 discloses heating the mixture which would necessarily produce a skeleton having the straight-chain polyethyleneimine skeleton with not less than 25% by mole (100% for straight chain) (Paragraph 42).

As to Claim 8, Takeyama US 20060050359 A1 discloses an inorganic hybrid structure characterized with mutually aggregating an organic (polymer) with an inorganic (silica) and would be capable of said means of aggregation of the crystalline polymer filament in said organic-inorganic hybrid structure (Paragraph 80). Additionally, the patentability of a product is independent of how it was made. *Ex parte Jungfer* 18 USPQ 1796, 1800 (BPAI 1991); *Bristol-Myers Co. v. U.S. International Trade Commission* 15 USPQ 2d 1258 (Fed. Cir. 1989). The burden is on applicants to show product differences in product by process claims. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

As to Claim 9, Takeyama US 20060050359 A1 discloses the use of branched chains (Paragraph 88) in producing a matrix (crosslinked) polymer, by use of sol-gel process (similar to applicant) and the use of polyethylene glycol (Paragraph 42) that

may be substituted (terminated) with a bromide or an iodide and would encompass being crosslinked by a crosslinker (Paragraph 48).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3, 6 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama US 20060050359.

As to Claim 3, Takeyama US 20060050359 A1 does not disclose a polymer having the straight-chain polyethyleneimine skeleton composed of a block copolymer between a straight-chain polyethyleneimine block and other blocks. Takeyama US 20060050359 discloses organic fluorides like homopolymers, copolymers, graft polymers or block polymers, containing a fluorine atom, such as vinylidene fluoride and Teflon (R); and modified polymers modified by a fluorine atom containing functional group; are preferable with respect to the refractive index not larger than that of the aforesaid transparent support (Paragraph 74). As these additives relate to the contrast of the display element, it would have been obvious to select a block copolymer to provide a reflective index not larger than that of the transparent support.

As to Claim 6, Takeyama US 20060050359 A1 discloses a length of the polymer solid electrolyte can be varied (Paragraph 79) based on contrast requirements and selection of commonly used organic pigments or dyes. The prepared homogeneous solutions included mean particle diameters of 0.5 microns (500 nm) of a trimethoxysilane (silica covering) solution (Paragraph 129). It would have been obvious to select the claimed range of diameters based on a required contrast.

As to Claim 7, Takeyama US 20060050359 A1 discloses a mean particle diameter of the colorant is preferably 0.1 to 1 microns to allow for covering power and whiteness (Paragraph 87). It would have been obvious to vary the range of the colorant based on the range of the crystalline fiber.

5. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama US 20060050359 and further in view of Andre et al. US 6,984,451.

As to Claim 5, Takeyama US 20060050359 A1 discloses a mixing ratio of 1-20 weight percent based on dispersion in the polymer (Paragraph 81). The surface of the polymer solid electrolyte layer which has been subjected to a surface treatment may also be added as a colorant. Takeyama recognizes the dispersibility as it relates to time (similar to applicants specification) based on the amount of coagulation obtained and while increasing the mixing ratio results in decreasing the polymers conductive

properties (Paragraph 82). It would have been obvious to increase the amount of silica based on a desired conductive property of the finished material.

Column and line numbers are provided for convenience. However, the entire reference should be considered.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY D. HARRIS whose telephone number is (571)272-6508. The examiner can normally be reached on 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkowsky can be reached on 571-272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. D. H./Gary D. Harris  
Examiner, Art Unit 1794

/Kevin M Bernatz/  
Primary Examiner, Art Unit 1794

September 29, 2009